



SIAS

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Trends and Statistics
Special Report on Trends in Computer
Technology

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Prepared by:

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Table of Contents

	<i>Page</i>
1.0 Education and Computers	
1.1 National higher-education communications network	1
1.2 Education via cable television and the Internet	1
1.3 Training for information technicians may cease	2
1.4 Software programming skills not enough	2
1.5 Private colleges faster to respond with training	3
1.6 Canada Foundation for Innovation	3
1.7 Multimedia courses at Wascana Institute gaining recognition.....	4
1.8 Technology a vital part of life in the classroom	4
1.9 Teaching via the Saskatchewan Television Network (SCN)	6
1.10 New training program - the Webucator	6
 2.0 Advancement in Computer Technology	
2.1 What do with older personal computers	7
2.2 Using data mining to the full	7
2.3 Toronto company developed software for data warehousing	7
2.4 Toronto-Dominion First Nations Bank - in Saskatoon	8
2.5 Global Internet treaties ratified under the auspices of the World Intellectual Property Organization (WIPO)	9
2.6 New computer products and programs	9
2.7 Notebook computers	10
2.8 Internet terminology	10
2.9 Desktop graphics	11
2.10 Canadians slow in adopting new technologies	11
2.11 Corporate memory - computer database or retiree?	12
2.12 Internet bridge maker	12
2.13 Will technology reduce jobs?	12
2.14 First Intranet, now Extranet	13
 3.0 Computers in Today's World	
3.1 Correct technology will lighten one's workload	14
3.2 Balancing work and family	15
3.3 How technology will change the way you work	15
3.4 Hazards of the World Wide Web	16

	<i>Page</i>
3.5 The Microsoft problem	17
3.6 The history of word processors	18
3.7 Selling via the Internet	18
3.8 IBM Canada refocusing	19
3.9 Internet security problems	19
3.10 Share of the web browser market in the future	20
3.11 Joint venture - commerce centre	20
3.12 Statistics on computer use	20
3.13 Personal Computers of the future	22
 SIAST Computer Access Survey - Results	 22

Special Report on Trends in Computer Technology

March 1997

1.0 Education and Computers

1.1 National higher-education communications network

Dale Burger reported that a group of 34 U.S. universities is planning to develop Internet II, a higher-education communications network, that would better meet academic needs. As well as education centres, Internet II could be accessed by research organizations, and government. Burger reported that Canadian universities and organizations are looking at something similar to this concept. Andrew Bjerring, CEO of the Canadian Network for the Advancement of Research, Industry and Education, indicated that CA*net II (Canada's proposed version) will be linked to the Internet II in the U.S. Bjerring stated that "This network provides for connections between universities." The new network will not replace the public Internet.

Source: Computing Canada, Vol. 22, No. 26, December 19, 1996, p1)

1.2 Education via cable television and the Internet

Teachers' Associations in Ontario, Alberta and Prince Edward Island have endorsed *Cable in the Classroom*. The educational initiative provides free cable service for educational programming to more than 6,000 schools in Canada. The President of the Canadian Teachers' Federation, Maureen Morris, in support of the initiative, stated that "Canadian students must be exposed to the wildest possible range of values, viewpoints and political orientations. *Cable in the Classroom* can do this."

Teachers and students can access more than 300 hours of specially selected educational programming per month. By accessing the www page, teachers are provided with actual lesson plans to use with the programs offered. The address is www.cablededucation.ca.

(Source: Canadian Vocational Journal, Vol. 32, No. 1, Fall 1996, p18)

1.3 Training for information technicians may cease

Kathleen Sibley indicated that Human Resources Development Canada (HRDC) may change its strategy and begin offering only lower-level computer training. This strategy would be a move away from the short, intensive courses that are currently offered and which provide highly qualified computer programmers, Webmaster and Internet developers for the workplace. This change in direction may result from the decision by the Federal Government to off-load skills training responsibilities to the provincial governments. Ron Crockford, regional manager of the Job Strategies division of HRDC, reported that the government currently buys seats from both private institutions and colleges which teach courses that reflect the current job market requirements. The colleges teach courses which range from basic keyboarding to advanced programming. The article reported that some are dismayed with the proposed return of HRDC to providing funds for basic computing courses and the potential move away from higher level technology training. The basic training "is the modern-day equivalent of teaching people to use the telephone" according to a computer trainer. "It's not going to get them very far in today's world".

(Source: *Time is running out for IT job seekers*, Computing Canada, Vol. 23, No: 4, February 17, 1997, p12)

1.4 Software programming skills not enough

According to Kim Honey's article *Schools don't teach what students need*, Morven Gentleman stated that there is "the perception that what is needed in the industry is someone who can write [software] programs." This, according to Gentleman, is only a portion of the skills required of computer graduates. The head of software engineering research at the National Research Council indicated that industry needs computer software engineers. Software engineering is a "myriad of skills, from mathematics to theoretical analysis and even applied psychology," according to Gentleman. The perfect employee, according to Bryan Plug, President of a Toronto-based company specializing in integrated information systems for businesses, "is one with information technology and business skills...."

The report outlined that there is a definite need for employees with more skills than writing computer programming. Paul Swinwood, President of Software Human Resource Council, the article reported, had "approached several universities about doubling their output of information technology graduates." The universities had indicated to Swinwood that it would take five years to provide graduates with the skills required.

Honey reported that in order to address the shortage of qualified software engineers, six universities in Ontario had established *The Consortium for Graduate Education in Software Engineering*. The Consortium is aimed at providing training, at the master's degree level, in computer engineering for those who wish to advance their careers.

The report recorded that by the end of 1997, there will be 20,000 jobs available in the software industry alone and there will not be enough graduates from universities, community colleges and private vocational schools with the required skills to fill the positions.

(Source: *Schools don't teach what students need*, The Globe and Mail, October 1, 1996, pC9)

1.5 Private colleges faster to respond with training

Kathleen Sibley's article on the trends in industry, stated that the rapid change in technology requirements had left a void of skilled workers in this area. To address this void, according to the Human Resources Development Canada (HRDC), the private colleges respond more quickly than the technical colleges in providing training that is needed immediately.

One such private college indicated that it tracked "jobs through the Internet, newspapers, employment agencies and employer clients to get a sense of which way the hiring wind is blowing" and offer relevant training to meet these needs. The fees for each course is \$300 per day. Those who are unemployed are eligible to receive funding for the variety of courses offered.

The technical colleges, according to Sibley, don't respond quickly to requests for the immediate offering of new programs, because of the bureaucracy and red-tape that they must go through before a program is approved.

(Source: *Computing Canada*, Vol. 23, No: 4, February 1997, p12)

1.6 Canada Foundation for Innovation

The Canadian Federal budget reported the investment of \$800 million for the establishment of the *Canada Foundation for Innovation* - a new independent non-profit organization, expected to be operational next fall. The foundation will support initiatives from universities, hospitals and privately run research institutes and will include the establishment of computer networks and communications linkages. Norine Heselton, vice-president of Policy with the

Information Technology Association of Canada stated that the Federal Government is recognizing "the tremendous contribution information technology and the strategic application of it makes to the Canadian economy."

The budget included a total of \$1 billion for the advancement of technology and included support for a) *The Networks of Centres of Excellence*; b) *The National Research Council's Industrial Research Assistance Program*; c) the *Community Access Program* to connect 5,000 small communities to the Internet; and d) focus on small business investment through the labor-sponsored *venture capital corporations fund*.

Roger Mareschai, Canadian Federation of Municipalities, reported that the Community Access Program, through technology, will bring rural communities out of isolation.

(Source: *Computing Canada*, Vol. 23, No. 5, March 3, 1997, p1)

1.7 Multimedia courses at Wascana Institute gaining recognition

Kevin O'Connor, writing in the *Leader Post*, praised SIAST for offering adult education courses that are relevant to the information-based economy of today. O'Connor compared the course offerings between the University of Regina and Wascana Institute. He indicated that the SIAST courses, for example: using the World Wide Web; publishing on the Internet; and Multimedia publishing on CD-ROM; sounded exciting, as well as provide the graduate with very marketable skills.

(Source: *CyberBeat*, *Leader Post*, December 23, 1995)

1.8 Technology a vital part of life in the classroom

Many schools in Canada have introduced students to *information technology*. An article in *Maclean's Magazine* reported that one school in Ontario may be miles ahead of other schools. The report stated that the particular school encouraged students on their first day of school to open an 'Internet account' and provided them with the ability to access computers and state-of-the-art electronic equipment throughout their years at the school. According to Principal Brian Steen, the school wanted to "integrate technology into the school day - into how kids communicate, how they think and how they learn." The equipment was provided to the school by a special \$100,000 provincial grant. The school was also able to obtain good prices on the purchase of equipment from several high-tech corporations in the country.

Within Canada, new technology has begun to change the way teaching is done today. Most schools have introduced their students to the new technology.

*Access to Computers
per 100 students in provinces in Canada*

Yukon	22.2%	British Columbia	12.7%
Manitoba	12.5%	Nova Scotia	10.0%
Alberta	9.4%	New Brunswick	10.0% [Francophone]
Ontario	11.8%	New Brunswick	7.1% [Anglophone]
Quebec	4.8%	Prince Edward Island	7.9%

**Statistics for Saskatchewan, North West Territories and Newfoundland not available.*

In recent years, the Federal Government and certain provincial governments have reduced education funding on the one hand, and provided schools with funding to purchase the latest information technology equipment on the other hand. In the years 1993 to 1996, Industry Canada provided \$25 million to establish *SchoolNet* which links about half the public schools in the country to the Internet and with each other. According to Doug Hull, director general of science promotion at Industry Canada, coordinator of the *SchoolNet* project "This is not a textbook approach to education. It's hands-on and it's relevant." The article reported on other such innovations.

The article provided readers with some pros and cons of students turning completely to working with the new technology and away from the traditional methods of learning. The report stated though that not all educators and parents were in favour with the new direction. Some educators, the report recorded, were of the opinion that "lesson plans are quietly turning into corporate training sessions - or thinly disguised pitches for the latest computer gadgets." With the leap to the *information technology*, Therese Laferriere, professor of education at Laval University, stated that "Three years ago there was no world wide web. Three years from now, high-school graduates may well have a Web page of portfolios along with their diplomas." Educating students will never be the same, according to Laferriere.

(Source: Macleans, August 26, 1996, p40)

1.9 Teaching via the Saskatchewan Television Network (SCN)

The article *New Age School* in the *Star Phoenix* reported on three schools in the province where students access courses via the Saskatchewan Television Network (SCN). The report centred on one of the schools, Viscount Central, and highlighted the growing importance of computers in instruction and the advantage of having corporate sponsorship in education. The venture with Viscount Central, included support from corporations as well as residents of the area. SaskTel, Central Canada Potash, the former Future Corporation and Apple Canada were among the corporate sponsors for the Viscount Central project. The report indicated that the school has its own computer network, an internal electronic mail-system, the cable television system, two computer laboratories and a library equipped with CD-ROMS. Graduates of the school reported that they were "miles and miles ahead of the people they work with or go to school with", according to assistant principal Jay Lorenzen.

(Source: *New Age School*, The Star Phoenix, November 19, 1996, p1)

1.10 New training program - the Webucator

A new training program, called the *Webucator* is "technology that allows the presentation of training materials to thousands of employees via the Web", according to Mike Belanger, senior account executive of the company that developed the program - Silicon Graphics. Webucator will revolutionize the delivery of information to employees, such as graphics, video, audio, presentation notes and charts and can be provided through a central server or CD-ROM.

(Source: *Webucator has a lesson for the staff*, The Globe and Mail, November 12, 1996, pC1).

2.0 Advancements in Computer Technology

2.1 What to do with older personal computers

According to the companies Dataquest and International Data Corp., there are 181 million 486 and low-end Pentium computers in use today and 91 million computers worldwide still running Dos or Windows 3.x. Sun Microsystems Inc. a major player in the development of Java software will soon market Project Rescue. Project Rescue is a low-cost way for companies to ease into the network computing environment using the Java capabilities with their current computers and software. Java is a programming language that is transparently portable across the Internet.

With Project Rescue, users will not need Windows 3.1. The software is installed over DOS and the graphics capabilities will come from Project Rescue.

(Source: *Computing Canada*, Vol. 23, No: 5, March 3, 1997, p17)

2.2 Using data mining to the full

Despite the wealth of information contained in the storage of data, many companies do not use the data to its full advantage. Studies have shown that companies only use about 10% of data for decision-making. According to researchers, this will change and within the next three years 90% of corporations will begin to see the benefits of 'data mining'. This technology extends the ability of business users to analyze and understand the information in the data warehouse. Data mining can be used, for example, to understand market segments or buying patterns for new products. Debbie Manchur, a business intelligence specialist with IBM, outlined five steps that would ensure maximization of an organization's return on its investment. Manchur stated that data warehousing need not be difficult. Once a company had finalized its strategy, "the implementation and management of a warehouse will offer your organization a whole new world of competitive advantages."

(Source: *Computing Canada*, Vol. 23, No: 4, February 1997, p39)

2.3 Toronto company developed software for data warehousing

The Advanced Technology Transfer Group in Toronto recently developed two software packages that will assist companies with *data warehousing*. The software is called *Neuro-Classifier for Windows* and *Data Machine for*

Windows. According to the article in *The Globe and Mail*, the software will “mimic the human brain and quickly spot and analyze trends contained in any data bank.” This type of software, called *neural networks* has been around for over twenty years but the two versions mentioned above are innovative in that they extract the data required a lot quicker than other packages. Companies, such as Environment Canada, NASA, Canadian Imperial Bank of Commerce and the Boston General Hospital use the Toronto company’s software. The article highlighted a variety of types of data required by different companies where the *Neuro-Classifier* and *Data Machine* packages proved successful.

The article reported that the software packages had been installed in over 1500 companies and universities.

(Source: *Software Bloodhounds*, *The Globe and Mail*, October 1, 1996, pC8)

2.4 Toronto Dominion First Nations Bank - in Saskatoon

The opening of a bank for First Nations peoples is “a major economic self-determination for Canada’s First Nations”, stated Chief Blaine Favel of the Federation of Saskatchewan Indian Nations which represents 73 aboriginal bands in the province. The First Nations Bank of Canada in Saskatoon will operate as a subsidiary to the Toronto Dominion Bank. Margaret Williamson, writing about industry trends, reported that as land claims settlements are negotiated, there will be millions of dollars that First Nations peoples can direct to business ventures. The Toronto Dominion bank is predicting recovery of its \$8 million investment with the anticipated successful business ventures. According to Williamson, the Toronto Dominion Bank had provided access for First Nations peoples from any of the 949 TD branches across the country. The will allow customers to pay bills, transfer money through the on-line service and access services such as the TD Access Network. John Switzer from the consulting firm Ernst and Young stated that he believed technology will be the successful link with the new bank. He stated that “Technology such as the Internet can give localized special interest banks (such as the First Nations one) an instant national presence.” With access to the TD network system, First Nations people living in remote areas will be able to bank over the Internet from their personal computers at home.

(Source: *Computing Canada*, Vol. 23, No: 2, January 20, 1997, p12)

2.5 Global Internet treaties ratified under the auspices of the World Intellectual Property Organization (WIPO)

Industry strategist, Adam Bisby, reported that 160 countries around the world ratified two global agreements that please authors, performers and producers of audio-visual material. The treaties protect the original or reproduction of artistic work produced on the Internet. The agreements are the World Intellectual Property Organization (WIPO) *Copyright Treaty* and the *WIPO Performances and Phonograms Treaty*. Lesley Ellen Harris, copyright and new media lawyer, stated that the treaties "protect creators' interests" Since the Internet has no borders, Harris reported that, for consistency, all countries that adopt the treaties must modify their copyright laws and work within similar guidelines.

According to Harris, lobbyists for the treaties at the WIPO Geneva conference reported that the issues - *reproduction of artistic works through Web browsers and liability for copyright infringement* were not addressed.

Colin Ryan, senior technical advisor for Local Global Access, a Toronto based Internet Service Provider, stated that "Copyright infringement on the Net is widespread, mainly because it is usually accidental." He indicated that most Internet users believe that information on the Net, whether text or image, is there for everyone to use.

(Source: *Computing Canada*, Vol. 23, No: 2, January 20, 1997, p14)

2.6 New computer products and programs

The PCComputing magazine introduced several new computer programs to upgrade and provide for a more efficient workplace. These included Microsoft Office 97, LotusSmartSuite 97, CorelDraw7. With the introduction of each new software, the magazine provided its verdict of the products and highlighted the pros and cons of each. The magazine also had an article titled **200 Most Valuable Products of the Year**. This article covered hardware products including printers, scanners, communications hardware, to software products including CD-Roms, graphics, to network and development.

(Source: *PCComputing*, Vol. 10, No: 1, January 1997, p121)

2.7 Notebook computers

The Notebook computer came onto the marketplace with a storm a few years ago. The computer was designed as the handy mobile professional instrument. In the article, Jim Forbes indicated that those who own Notebooks don't use the computers to their full potential, but use them for email and word processing, rather than for presentations. The newest versions of the Notebook computers will change this usage, according to Forbes. Developers of chips for the Notebooks are working on video performance, 3-D and multimedia chips which would bring the small computer in line with the desktop model for both speed and performance.

It is anticipated that in 1997, sales of Notebook and desktop computers will reach 70 million.

(Source: *Windows*, February 1997, P56 and p120)

2.8 Internet terminology

Below is a list of some key terms for use in journeying the information highway:

NETMASK: allow organizations to create individual networks;

SL/IP: *Serial Line Internet Protocol*. With the protocol the modem behaves like a network adapter by allowing it to communicate TCP/IP, thus making the computer part of the network.

PPP: *Point-to-Point Protocol* is the same as the SL/IP. With SL/IP one communicates TCP/IP. With PPP one communicates any protocol - for example: Novell, IPX, Banyan, Apple Talk etc.

IP address: is a number that is given to one's computer for identification on the Internet.

DNS: *Domain Name Service* provides the ability to name the computer's address rather than by a numerical IP address.

WINSOCK: is a specification established in the Windows computer industry to permit easy implementation of TCP/IP based services. A Winsock can operate on a network or over a phone line.

EMAIL: Electronic mail is a system that enables the exchange of messages between network users.

(Source: *Tips from the Top*, The Canadian Institute of Management, Issue 2, August 1996)

2.9 Desktop graphics

According to Laura Klancer, Apple computers remain the computers of choice for most graphics professionals and new media developers. Klancer recognized that even though Windows PCs had become the leader in the business and home computer markets, designers still preferred the multimedia software which is developed on the Macintosh platform. The Working Woman writer discussed the pros and cons of three companies and the tools that they have developed for designers and users of graphics.

(Source: Working Woman, February 1997, p68)

As well, Computing Canada provides a thorough review of Microsoft Office.

(Source: Computing Canada, Vol. 23, No. 1, January 6, 1997, p25)

2.10 Canadians slow in adopting new technologies

Dale Burger, Computing Canada, reported on a talk given by David Waung, Director General, Strategic Information Branch, Industry Canada. Waung was speaking at the Electronic Democracy Ontario Conference and stated that, though competent in developing new technologies, Canadians were slow at actually using award-winning information technologies. According to Burger, Waung stated that "We wait until technologies are mature and then we play catch up." Waung's talk centred on the Internet and economics and he stated that though Canada had the highest level of productivity it had the lowest level of productivity growth. Until companies accepted the Internet and its research capabilities and target customers internationally, Canada will remain stagnant.

Industry Canada's business research division has a web page *strategis.ic.gc.ca* which is designed to "help Canadian businesses become more export-oriented", stated Waung. He predicted that getting *on-line* will soon be as popular as the fax machine.

(Source: Computing Canada, Vol. 23, No: 4, February 1997, p1)

2.11 Corporate memory - computer database or retiree?

The Bureau of Labor Statistics (USA) estimated that in the US approximately 29.4 million people will retire from the workforce within the next ten years. The Bureau fears the loss of the *corporate memory* and suggests that corporate knowledge databases be created and put onto the companywide intranet. The history of the company would be on record. One company in the USA though used a different method - that of the aging employee (post 62) electing to work part-time until retirement. The semi-retired employee would pass on the knowledge and history of the company to other employees.

(Source: *Training - The Human Side of Business*, January 1997, p18)

2.12 Internet bridge maker

In the article Business Reading, Janet McFarland alerted readers to a gadget that had recently been developed which links competing Internet browsers. The article highlighted the new software and indicated that it "allows independent developers to create technology for use by Netscape or Microsoft's Explorer.

(Source: *The Globe and Mail*, July 17, 1996)

2.13 Will technology reduce jobs?

Contrary to what most people believe, over the past two centuries of industrial and technological advances, employment in rich industrial countries had risen. The Economist reported that jobs and living standards had risen "because of technological change, not in spite of it."

Jeremy Rifkin, in his book *The End of Work* stated that by the middle of the 21st century, hundreds of millions of jobs will be lost to technology.

The article in **The Economist** stated that though millions of jobs will be lost to technology, these job losses will be offset by job gains. Technology boosts output and creates new demand and new jobs. The report indicated that if new technology was only developed to improve existing products, then certainly employment would drop. The invention of technology for new products, the report stated, would bring a rise in investment and create new jobs.

According to the article, the potential for new jobs exists in the computer technology industry. In the 1970's very few worked in this industry compared

to 1994 when 20-30% of employees used computers.

(Source: *The World Economy Survey*, The Economist, Vol. 340, No: 7985, September 28, 1996, p19)

2.14 First Intranet, now Extranet

Technology in recent years has grown tremendously. In the article *Now it's the extranet* in *The Globe and Mail*, Gordon Arnaut reported that "The popularity of private networks has spurred organizations to take the idea further and extend their intranets to suppliers and customers." **Intranet** is - *an internal communications network that links employees using Internet technology.*

Extranet brings the - *concept of community into a business base.* Extranet provides companies with the ability to form tight communication bonds with partners, suppliers and customers, and that often translates into better co-operation and improved efficiency, according to Bob Hollingsworth, president of Inform Interactive Inc.

The article elaborated on the advantages of *extranet* and highlighted a number of businesses and corporations worldwide that use this method of communicating. It's become the standard day-to-day communications tool ..." stated Hollingsworth.

(Source: *Now it's the extranet*, The Globe and Mail, November 12, 1996, pC1)

3.0 Computers in Today's World

3.1 Correct technology will lighten one's workload

According to the President Cheryl Currid of the Houston, Texas consulting company Currid & Company, 20% - 40% of a person's work time may be lost in *dumbwork*. This is her terminology for the brainless tasks of looking up information, reading email, playing phone tag, using incorrect software for a job, or using the correct software incorrectly.

Currid stated that technology properly used increased productivity. Research gathered by her company indicated that most users "don't go beyond the basics" and only take advantage of 10% - 15% of the technology that they could use.

As examples Currid indicated the underuse of spreadsheets, the email and message manager.

⇒ In the use of spreadsheets, users will gather printouts of electronic data and then spend hours re-keying the information from the data into a spreadsheet instead of downloading it from an on-line source. Or users will calculate numbers with a calculator and then manually add the information onto a spreadsheet.

⇒ In the use of the email, the users waste a lot of productivity time reading the colossal amount of unimportant mail along with the important mail directly related to work.

⇒ In the use of the voice mail, users are not properly trained in the many ways information can be transmitted via the message manager. If the voice mail is correctly utilized, users "... can complete an entire transaction without ever talking directly to each other."

⇒ In the use of reports, users take far more time and effort than is required, instead of using inexpensive software templates that can be edited to taste.

The consulting firm recommended a variety of software that would assist users in fine-tuning their workload. An example given was software for the email which automatically sorts and prioritizes messages. This software also included a scheduler which, if connected to a number of users, could arrange meetings and reduce the endless rounds of telephone and email tag when planning meetings.

Currid indicated that the software is not costly and if employees were properly trained, "...the investment pays for itself many times in improved productivity".

(Source: *Working Woman*, June 1996, p16)

3.2 Balancing work and family

Information Systems departments in some companies are looking at the concept of flexible working hours for staff. Steve Alexander in his article **Striking a balance between work and family** reported that over the past few years attention had been given to this concept. A company in the US released the results of a poll of IS employees in which it was found that 62% of respondents reported that their families were "adversely affected by work-related problems such as added stress and longer hours."

Robert A Zawacki, a Colorado Springs consultant, stated that employees are "drowning in work" and those companies that are willing to help employees deal with the balance issues will benefit.

Some companies have tailor-made the *balance* concept for their own use. One such company, the Bank of Montreal, agreed that its information systems employees did not need to be sitting at a desk in the office in order to perform their duties. The bank equipped most IS employees with portable computers, cellular phones and pagers and allowed employees to manage their own time and workload. The bank reported that it had been quite satisfied with participants' performances. Employees reported that the balance between work and family had greatly improved. Don Chamberlain, senior manager of solutions and applications at the bank, reported that he doesn't check for "style and punctuality", but measured "the amount of work done and the customer satisfaction".

Another company, Du Pont Co., reported that it couldn't offer work-at-home jobs to staff in the PC support area, so the company brought in the concept of job-sharing. Du Pont indicated that it was very pleased with the result because the situation was a win-win one - employees took ownership and often worked additional hours to get their job done, and the company received "more output from two people that we would from just one".

(Source: *Computerworld*, Vol. 13, No. 4, February 28, 1997, p29)

3.3 How technology will change the way you work

Gloria G. Brame, author of the article **Seismic Shifts** highlighted the changes in technology over the last ten years and how it has affected the workplace. She used the example that ten years ago the *fax machine* had not been invented. The author indicated that by the year 2000, 14 million workers will be using the Internet at work. This is an increase from the 11 million users today. For the article, Brame contacted some of America's most original technological thinkers

about the coming changes in technology and how these changes will affect the work place and the workforce.

With the advance of technology, one such forward thinker who was contacted, indicated that the concept of a distinct division between one's personal life and work life was fast disappearing. He reported that people in the workforce took business calls at home and took a longer lunch break to perform some 'home' tasks. With the 'team approach' to project development, often workers were connecting with others working on a project who may be from a different time zone and therefore it was not often possible to complete the tasks of the project within a normal working day.

Another forward thinker indicated that the labour force, having shifted from the farm to the factory, and the factory to the office, will now move from the office to the Internet. All routine aspects of office work will be automated and the same technology that automated the office work will generate information. From this will come the bases for new jobs whose main purpose will be to analyze the information generated.

One other indicated that many companies had already begun to use Intranet - *an internal communications network that links employees using Internet technology* - which connects those who produce information and those who analyze that information. The man in the middle - who mainly moves the information - will be seriously affected. The technological thinker indicated that to effectively use intranets, a set of rules must be developed. For instance, to indicate to employees that it is legal for companies to read email but illegal to wiretap an office phone - employees often treat one like the other.

(Source: *Working Woman*, June 1996, p30)

3.4 Hazards of the World Wide Web

Mary Gooderham, in her article *Cocooning young from Web hazards*, highlighted some of the concerns parents had about younger people scanning the Internet. According to the Alliance for Emerging Technologies, more than 7 million North Americans under the age of 18 use the Internet. Don Tapscott, a Toronto Internet consultant recorded that parents were not as familiar with computers, the Internet and technology, as their offspring. One Grade 7 student identified in the article spent two to three hours a day on computers visiting Internet cafes, playing games and collecting and trading dozens of digitized sounds on the computer. Gooderham reported that though the student's mother will not curtail his time on the computer, she was concerned that his 'basics' would be affected, such as reading, spelling and grammar.

Gooderham wrote that a number of parents were concerned with some information that was on the Internet and were looking at various ways to censor what the young are able to do on the net. The manager of communications for Sympatico Internet, a service provider comprised of telephone companies in Canada, stated that the company was evaluating whether to offer blocking software to customers, rather than have parents install purchased blocking devices. Sympatico, according to the manager, does assist parents with information about various products available today as well as instructions about the use of accounts or passwords to prevent automatic entry to the Internet. School Boards and schools are developing ethics guidelines for use of the Net on school computers.

There are those who maintain that total censorship is both unnecessary and undesirable because it may limit access to the technology. Derek de Kerckhove, from the University of Toronto, indicated that "Multi-media, virtual reality and the Internet are all technologies which kids are now learning and which are going to become their tools of work."

(Source: *The Globe and Mail*, November 26, 1996, pA8)

3.5 The Microsoft problem

The Editor of the *Windows* magazine, Mike Elgan, in the December '96 and January '97 issues of the magazine, provided the readers with the pros and cons of splitting the Microsoft company into two separate entities. As a result of a complaint filed by Netscape, Microsoft's rival browser, the Justice Department advocated splitting the company. There were three major charges against Netscape's reasons for the complaint regarding Microsoft.

In the February 97 issue of the magazine, the readers were adamant 20/1 against splitting the company and with the idea of government interference in the computer industry.

The editor provides the readers with some recommendations that Microsoft should consider to rectify its serious public image.

(Source: *Windows*, February 1997, p45)

3.6 The history of word processors

Today the words 'word processor' mean software, but at one time, word processors were clunky pieces of hardware, according to Kevin Stumpf, founder and executive director of Commercial Computing Museum. Stumpf reported that the history of word processing actually began with the first typewriter in 1870 and typewriters continued to be the "machine-method of writing" until the launching of computers. Stumpf outlined the evolution of various models of the typewriter and the introduction of the term "word processing" which was coined by IBM in 1964 with the introduction of the IBM Magnetic Tape Storage Typewriter. The typewriter captured all the developments at the time, such as text editing and mail merging. Even with the addition of the developments, the machine was still considered a typewriter. In the early 1970's, other developers expanded on this model. Wang Laboratories Inc. introduced the world's first video-based, dedicated word processor which used cassette tape for storage. Two Canadian companies developed a video-based word processor with diskette storage and this became more popular than anything that had already been developed. The personal computer came on the market and since that time the revolution grew very fast. Eventually word processing manufacturers Zerox, Exxon and Burroughs realized their software packages could run off small personal computers. In 1976, Michael Shrayr created the *electric pencil* which was the first word processing package for a desktop computer. From there the rest is history.

(Source: *Computerworld*, Vol. 13, No: 4, February 28, 1997, p6)

3.7 Selling via the Internet

Direct order selling in the USA has grown from \$47.6 billion in 1990 to \$75 billion in 1996, according to Direct Marketing Association. The company credited the Internet for the sharp boost in mail-order selling. In this period of time, catalogue sales had increased twice as fast as retail store sales. This form of shopping is very convenient and offers money-back guarantees and shortened delivery times. Most major retail stores operated with a mail order section which was often more profitable than their retail section. Statistics indicated that approximately 25% of those who use the Internet shop via the on-line shopping sites.

(Source: *Working Woman*, February 1997, p8)

3.8 IBM Canada refocusing

Carolyn Gruske reported that Mike Quinn, IBM Canada's manager indicated that the company will now focus its attention on its core competency areas - *network computing and services*. Quinn stated that within the last two months IBM Canada had sold one of its subsidiaries and purchased further shares in two other subsidiaries - a company that managed computer outsourcing and another that provided multilingual education services training. Quinn stated that software and service areas are "strategic growth areas for us..." and that network computing was the fastest growing area for IBM. According to Quinn, IBM's philosophy was to work with business partners and "utilize the resources and skills of our business partners to a greater extent." This, Quinn stated, is the reason IBM sold its field maintenance company PC ServicePartners Inc. to business partner SHL Systemhouse Inc. The article reported that IBM had initially entered the services industry to assist one of their retailers in the US who was in financial trouble, but that now it was time to step back and let SHL Systemhouse Inc. take over.

Source: Computerworld, Vol. 13, No: 4, February 28, 1997, p23)

3.9 Internet security problems

Dale Burger of Computing Canada, reported that 75% of Internet sites are ripe with *security holes and backdoors*. Burger was quoting Dan Farmer, a security researcher and programmer. Farmer, author of the Security Administrator's Tool for Analyzing Networks (SATAN), surveyed 2200 computing systems and found that 75% of them could be broken into or destroyed. Farmer studied the 2200 addresses on the WWW using SATAN. The survey included 660 banks, 274 credit unions, 47 U.S. Federal Government sites, 312 newspapers. In the results of the survey Farmer recorded the vulnerability levels of the banks as:

<i>Institution</i>	<i>Highly Vulnerable</i>	<i>Somewhat Vulnerable</i>	<i>Considered Safe</i>
U.S. Federal Govt.	38.3%	38.3%	23.4%
Banks	35.6%	31.7%	32.7%
Credit Unions	20.4%	48.9%	30.6%

Farmer assured Net users that though considerable amounts of information could be accessed, it "is important to note that if you could break into one of the Web sites, you couldn't actually steal any money." The full report could be accessed on the Internet at <http://www.trouble.org/survey>.

(Source: Computing Canada, Vol. 23, No: 2, January 20, 1997, p33)

3.10 Share of the web browser market in the future

Dale Burger reported that according to a recent report by Communications Industry Researchers Inc., 70-80% of browser users will continue to use Netscape over other browsers. This included Microsoft. The report stated that "Microsoft will never have the dominance of enterprise networks that it did of the desktop."

WEB BROWSER MARKET - 1997-99

<i>Browsers</i>	<i>1997</i>	<i>1998</i>	<i>1999</i>
Netscape Navigator	75%	72%	70%
Microsoft Internet Explorer	13%	17%	21%
Other browsers	12%	11%	9%

(Source: *Computing Canada*, Vol. 23, No. 1, January 6, 1997, p37)

3.11 Joint venture - commerce centre

Dale Burger reported that a group of Canadian companies had joined together to establish an electronic commerce centre. The joint venture, he reported, was between the DMR Group, New Brunswick Tel, Nortel, Sun Microsystems of Canada and the University of New Brunswick. The centre "is an incubator for EC initiatives" according to director Dan DeMateis and "Through its members, the Centre has access to leading-edge technology."

(Source: *Computing Canada*, Vol. 23, No. 4, February 17, 1997, p4)

3.12 Statistics on computer use

In an *Enviro Scan* report, the Canadian Institute of Research and Planning Association, reported on a survey it conducted on computer use. The survey asked the following questions and received the following responses:

Do you currently own a computer for your home?

Yes - 39% No - 61%

Who is the most frequent user of the computer in your home?

Self 43%
 Another Adult 29%
 Children under 18 years 19%
 All equally 9%

The *Enviro Scan* reported that 35% of computer usage is for education purposes.

(Source: *Enviro Scan*, Canadian Institute of Research and Planning Association, Vol. 1, No. 3, October 7, 1996)

As well, The Globe and Mail published a statistical breakdown on computer use by household, age, provincial distribution, employment status and by level of education. For example, the provincial distribution statistics are shown as follows:

Computers in Canada

Provincial Distribution - 1996 figures

<i>% of households</i>	<i>With Computer</i>	<i>With Modem *</i>
British Columbia	37.7	55.2
Alberta	37.9	55.2
Saskatchewan	28.3	42.6
Manitoba	25.7	56.0
Ontario	35.8	49.2
Quebec	24.0	40.3
Nova Scotia	26.1	55.9
New Brunswick	21.4	47.5
Newfoundland	21.5	48.8
Prince Edward Island	22.4	45.5
CANADA	31.6	49.2

**Modem with computer, as a % of households with a computer*

The report also indicated that the growth of households with computers has tripled in ten years (1986-1996).

(Source: Computers in Canada, *The Globe and Mail*, March 18, 1997, pC2)

3.13 Personal Computers of the future

PC Magazine, the independent guide to personal computing, in the 15th anniversary issue, provides readers with an overview of the trends in personal computers for the future. The magazine reports that the PC industry has moved ahead much faster than any other industry. There is a section in the magazine titled **Looking Back** which provides a chronological history of PCs since the introduction in 1981.

(Source: *PC Magazine*, Network Edition, Vol. 16, No: 6, March 25, 1997, p6)

SIAST Computer Access Survey - Results

The results of the SIAST Computer Access Survey are finalized. The survey was conducted in late November, early December 1996. The Computer Access Survey was distributed to every employee at SIAST, including full-time, part-time and casual employees. One of the objectives of the survey was to determine the level of access that SIAST employees have to computers in the workplace. The overall response rate was 40%. The results of the survey have been presented to the SIAST Management Team.

The *Executive Summary* of the report outlines the major findings of the survey. For example: 93% use word processing - of that, 46% use Word Perfect and 22% use Microsoft Word; 50% of respondents use the Internet; and 67% have electronic mail. Also, 47% have a single user networked computer and an additional 21% have reasonable access to a networked computer.

Contact the Research and Development Division of the Secretariat for further details on the results of the survey.

(Source: *Computer Access Survey*, Research and Development, March 1997)